



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Central Regional Office • 627 Main Street, Worcester MA 01608 • 508-792-7650

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April 13, 2012

Mr. Martin Lee
Bodycote Thermal Processing, Inc.
284 Grove Street
Worcester, MA 01605

RE: Worcester
Transmittal No.: X250014
Application No.: CE-12-005
Class: NM25
FMF No.: 130526
AQ No. 118-345
AIR QUALITY PLAN APPROVAL

Dear Mr. Lee:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Waste Prevention, has reviewed your Limited Plan Application ("Application") listed above. This Application concerns the proposed installation and operation of an air pollution control device on a tempering furnace at your metal heat treating facility located at 284 Grove St. in Worcester, Massachusetts ("Facility").

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control," regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-J, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP's review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator ("Permittee") must comply in order for the Facility to be operated in compliance with this Plan Approval.

1. DESCRIPTION OF FACILITY AND APPLICATION

This Facility heat treats metal products for the aerospace, automotive, tooling and industrial machinery industries. Prior to exposure to high temperatures in six (6) tempering ovens the metal parts may be oil quenched and washed. Residual oil and cleaning agents have resulted in visible emissions being discharged from the ovens and from general room ventilation.

In 2008, an administrative consent order with penalty (ACOP) was issued for the occurrence of visible emissions from furnaces or ovens. The ACOP required the submittal of an air quality plan approval application that identified air pollution control devices capable of mitigating visible emissions and odors. A Best Available Control Technology (BACT) analysis considered both thermal oxidation and ultra high efficiency filtration ("UHF"). The duct burners were the preferred control device for the natural gas fired ovens because they tolerated occasional sparks carried over in the oven exhaust. On March 10, 2009, Air Quality Comprehensive Plan Approval, TR#X225291, was issued for the installation of in-stack duct burners on tempering ovens #462, #464, #466, #467, #468, #469. After installation and operation of the duct burners on all the ovens except #468 (emission unit #8), Bodycote found that a significant amount of maintenance and down time was required on the devices. Subsequently, Bodycote submitted an application for the installation of an ultra high efficiency oil mist and oil smoke filtration device on oven #468 citing the BACT analysis (2009) that concluded that the device would be as efficient as the duct burners without generating additional air pollutants from the combustion of fossil fuel. Additionally, an UHF oil filter was working effectively in place on another oven at Bodycote.

This Plan Approval addresses the change in the pollution control device (PCD) chosen for oven #468 from a duct burner to the Absolent ODR 3000 oil filter.

The PCD unit shall consist of three (3) glass filters or cassettes that have a maximum air to filter media ratio of 2.06. The oil is collected on the glass media, cooled and continually drips down through the 3 stage filters into a waste oil collection drum.

2. EMISSION UNIT (EU) IDENTIFICATION

Each Emission Unit (EU) identified in Table 1 is subject to and regulated by this Plan Approval:

Table 1			
EU#	Description	Design Capacity	Pollution Control Device (PCD)
8	Surface Combustion Co. Uni-Draw Electric Oven #468	128 cubic feet (ft ³) Oven volume	Absolent ODR 3000 Ultra High Efficiency oil mist and oil smoke Filter <ul style="list-style-type: none"> • 95% capture efficiency • 99% control efficiency • 94% overall removal efficiency • < 140 °F • ≥ 0.4 inches of water (wg) pressure across the HEPA filter (stage 3) or 100 Pa • Max airflow of 2350 cfm

Table 1 Key:

EU# = Emission Unit Number
 PCD = Pollution Control Device
 Pa = Pascal (unit of pressure)
 Cfm= cubic feet per minute
 > = greater than
 °F = degrees Fahrenheit
 Wg= water gauge

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2 below:

Table 2		
EU#	Air Contaminant	Emission Limit
8	Visible emissions	0% opacity
	Particulate Matter (PM)	0.003 gr/ACF
	Particulate Matter (PM)	0.05 lbs/hr
	Particulate Matter (PM)	0.05 tons /year
	Odors	No detectable odors

Note:

PM includes Particulate Matter having a diameter of 10 microns or less (PM₁₀) and particulate mater having a diameter of 2.5 micros or less (PM_{2.5})

Table 2 Key:

EU# = Emission Unit Number

Gr/ft³ = grains per actual cubic foot

lbs/hr = pounds per hour

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5 below:

Table 3	
EU#	Monitoring and Testing Requirements
8	1. The differential pressure gauge shall be installed and located in an area accessible to the operator and be maintained by the Permittee in sufficient manner to ensure continuous and accurate operations at all times.
	2. The filtration device shall be equipped with a differential pressure gauge that indicates when the PCD requires maintenance. The gauge is color coded. The gauge shall be checked daily to confirm that the indicator is in the green zone. The green zone equates to a differential pressure gauge of ≥ 0.4 inches of water.
	3. The filter stages shall be serviced when the pointer on the differential pressure gauge is in the yellow zone.
	4. The care and maintenance of the ODR 3000 oil mist filter shall be completed in accordance with the manufacturers' recommendations.
	5. The temperature of the ODR 3000 unit shall be continuously monitored. The unit shall be equipped with an audible alarm and flashing light that alerts personnel that the temperature of the unit is no greater than the maximum recommended temperature of 140 °F.
	6. In the event that the temperature of the ODR 3000 unit is greater than the recommended temperature of 140 °F, the system will be flooded with carbon dioxide (CO ₂) to prevent fire.
	7. The Permittee shall take every precaution to prevent a condition of odors from this oven that may result from ammonia leaks. In the event that ammonia is detected the operation of the oven shall be terminated until the source of the leak is identified and repaired.
Facility-wide	8. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	9. If and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13

Table 3 Key:

EU# = Emission Unit Number

°F = degree Fahrenheit

CO₂ = carbon dioxide

Table 4	
EU#	Record Keeping Requirements
Facility-wide	1. The Permittee shall maintain adequate records on-site to demonstrate compliance with all operational, production, and emission limits contained in Table 2 above.
	2. The Permittee shall maintain records of monitoring and testing as required by Table 3.
	3. The Permittee shall maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the EU(s) and PCD(s) approved herein on-site.
	4. The Permittee shall maintain a record of routine maintenance activities performed on the approved EU(s), PCD(s) and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
	5. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EU(s) PCD(s) and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to compliant operation.
	6. The Permittee shall maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	7. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years.
	8. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

Table 4 Key:

EU# = Emission Unit Number

PCD = Pollution Control Device

SOMP = Standard Operating and Maintenance Procedure

USEPA = United States Environmental Protection Agency

Table 5	
EU#	Reporting Requirements
Facility-wide	1. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a “Responsible Official” as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	2. The Permittee shall notify the Central Regional Office of MassDEP, BWP, Permit Chief by telephone 508-767-2845, email, or fax (508-792-7621), as soon as possible, but no later than one (1) business day after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to Permit Chief at MassDEP within three (3) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
	3. The Permittee shall report every three years to MassDEP, in accordance with 310 CMR 7.12, all information as required by the Source Registration/Emission Statement Form. The Permittee shall note therein any minor changes (under 310 CMR 7.02(2)(e), 7.03, 7.26, etc.), which did not require Plan Approval.
	4. The Permittee shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within 30-days from MassDEP’s request.
	5. The Permittee shall submit to MassDEP for approval a stack emission pretest protocol, at least 30 days prior to emission testing, as defined in Table 3 Monitoring and Testing Requirements, if requested.
	6. The Permittee shall submit to MassDEP a final stack emission test results report, within 45 days after emission testing, as defined in Table 3 Monitoring and Testing Requirements.

Table 5 Key:

EU# = Emission Unit Number

4. SPECIAL TERMS AND CONDITIONS

The Permittee is subject to, and shall comply with, the following special terms and conditions:

- A. The Permittee shall comply with the Special Terms and Conditions as contained in Table 6 below:

Table 6	
EU#	Special Terms and Conditions
8	1. The Permittee shall notify MassDEP within 10 business days of the installation of the pollution control device.
	2. The Permittee shall design and maintain the tempering oven, ductwork, oven seals and associated equipment such that all emissions generated while operating the tempering oven is captured and controlled.
	3. The oven shall be equipped with an interlock system that prevents the oven from running without the pollution control device operating.
	4. The Permittee shall operate the tempering oven and the PCD in accordance with the manufacturers' SOP and specifications.
	5. At least once per month, the Permittee shall inspect the seal of the loading door for EU#8. In the event of visible leaks or other information signifying a leak, the door seal shall be replaced or repaired within 15 business days. The inspection shall be documented and include the time, date, inspector and action taken.
	6. Any prior Plan Approvals issued under 310 CMR 7.02 shall remain in effect unless specifically changed or superseded by this Plan Approval. The Facility shall not exceed the emission limits and shall comply with approved conditions specified in the prior Plan Approval(s) unless specifically altered by this Plan Approval.

Table 6 Key:

EU# = Emission Unit Number

SOP= Standard Operating Procedure

- B. The Permittee shall install and use an exhaust stack, as required in Table 7, the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. The exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including but not limited to rain protection devices known as "shanty caps" and "egg beaters." The Permittee shall install and utilize an exhaust stack with the following parameters, as contained in Table 7 below, for the Emission Units that are regulated by this Plan Approval:

Table 7				
EU#	Stack Height Above Ground (feet)	Stack Inside Exit Dimensions	Stack Gas Exit Velocity Range (feet per second)	Stack Gas Exit Temperature Range (°F)
8	35	1 foot	50 feet/second	95

Table 7 Key:

EU# = Emission Unit Number

°F = Degree Fahrenheit

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.
- C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.
- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.
- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.
- F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.

- G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.
- H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.
- I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.
- J. The Permittee shall conduct emission testing, if requested by MassDEP, in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13. If required, a pretest protocol report shall be submitted to MassDEP at least 30 days prior to emission testing and the final test results report shall be submitted within 45 days after emission testing.
- K. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain "Fail-Safe Provisions," which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Enclosed is a stamped approved copy of the application submittal.

Should you have any questions concerning this Plan Approval, please contact Maria L'Annunziata by telephone at 508-767-2748, or in writing at the letterhead address.

This final document copy is being provided to you electronically by the
Department of Environmental Protection. A signed copy of this document
is on file at the DEP office listed on the letterhead.

Roseanna E. Stanley
Acting Permit Chief
Bureau of Waste Prevention

Enclosure

ecc: Worcester Department of Inspectional Services
Worcester Fire Department
MassDEP/Boston - Yi Tian
Capaccio Environmental Engineering, Inc.